REMARKS

Reconsideration of the rejection set forth in the Office Action is respectfully requested. By this Amendment, claims 1-5, 7, 9-14, 16, 18-22, and 26-28 have been amended. Currently, claims 1-28 are pending in this application.

Rejection of claims 1-28 under 35 USC 102 over Ahern

Claims 1-28 were rejected under 35 USC 102 as anticipated by Ahern (U.S. Patent No. 5,926,463). This rejection is respectfully traversed in view of the amendments to the claims and the following arguments.

Multicast trees are commonly established to distribute information to multicast participants in an efficient manner. As noted in the background of the invention, there are several routing protocols that may be used to establish a multicast tree, two of which are Protocol Independent Multicast (PIM) and Distance Vector Multicast Routing Protocol (DVMRP). (See Specification at page 2, lines 4-6). A particular application will generally use only one of these multicast routing protocols.

Once a multicast tree has been established using one of these routing protocols, the multicast tree may be used by the application that established the multicast tree, and may be read by other applications that are configured to use the same routing protocol that was used to establish the multicast tree. (Specification at page 2, lines 8-9). However, applications that are configured to read multicast information established using a particular multicast routing protocol have conventionally not been able to read information about multicast trees using a routing protocol other than that particular multicast routing protocol. For example, a network management application configured to troubleshoot DVMRP trees by reading DVMRP multicast routing information would not be able to use a multicast tree established using PIM. (See e.g. specification at page 2, lines 9-11). Examples of several applications that may wish to read previously established multicast tree information include network management programs and other programs that may wish to route data or troubleshoot multicast problems. (Specification at page 1, line 28 to page 2, line 2; and at page 8, lines 25-27).

Applicant discovered that multicast information could be stored in a Management Information Base (MIB) on routers on the network in a protocol neutral format and then retrieved by applications using an available network management protocol, such as Simple Network Management Protocol (SNMP), by applications using different types of multicast

protocols. Further, applicant discovered that the retrieved information could be processed by the applications to enable the applications to recreate the established multicast tree in a protocol specific fashion to enable the application to use the multicast tree on the network.

The Examiner has taken the position that Ahern discloses a method of producing a multicast tree from existing multicast information, or a multicast in a network which includes storing multicasting information in a protocol independent manner in network devices. Applicant respectfully disagrees with this interpretation of Ahern. Rather, applicant respectfully submits that, as discussed in greater detail below, Ahern discloses a network management system that is configured to trace DVMRP trees through the network. (See e.g. Ahern at col. 13, lines 37-40). Since the application is configured to collect DVMRP information from the routers on the network, the information being stored in the network elements is not protocol independent but rather is standard DVMRP multicast routing information..

The Examiner has cited Figs. 3, 8 (items 9A, 9) the Abstract, Col. 6, line 55 to Col. 7, line 17 (MIB II) and Col 17, lines 34-57, of Ahern as support for the Examiner's position that Ahern teaches storing multicast routing information on the routers in a protocol neutral format. Applicants respectfully submit that none of these portions of Ahern teach or suggest that the routers should implement a protocol independent multicast database containing protocol independent multicast routing information. Each of the cited aspects of Ahern are discussed below.

The Examiner cited Fig. 3 of Ahern. For convenience, Fig. 3 of Ahern has been reproduced below:

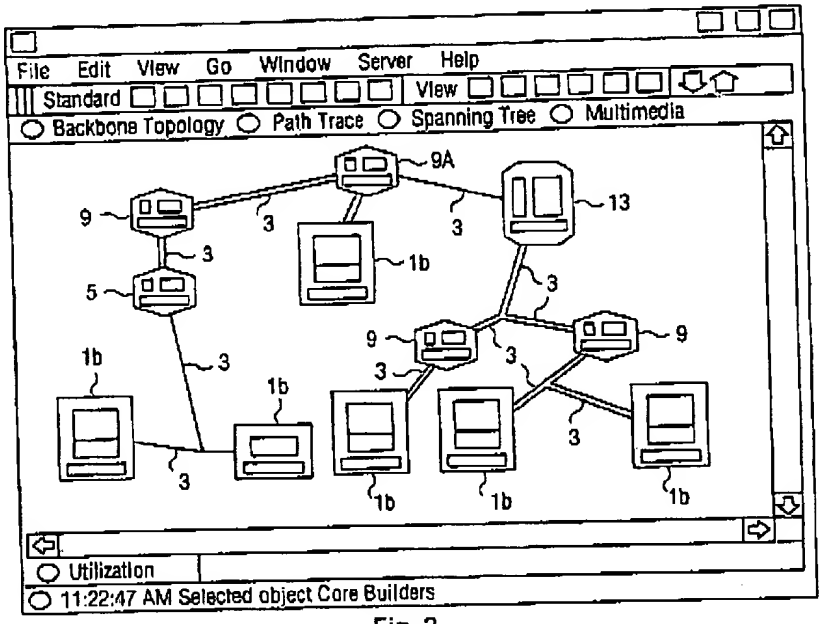
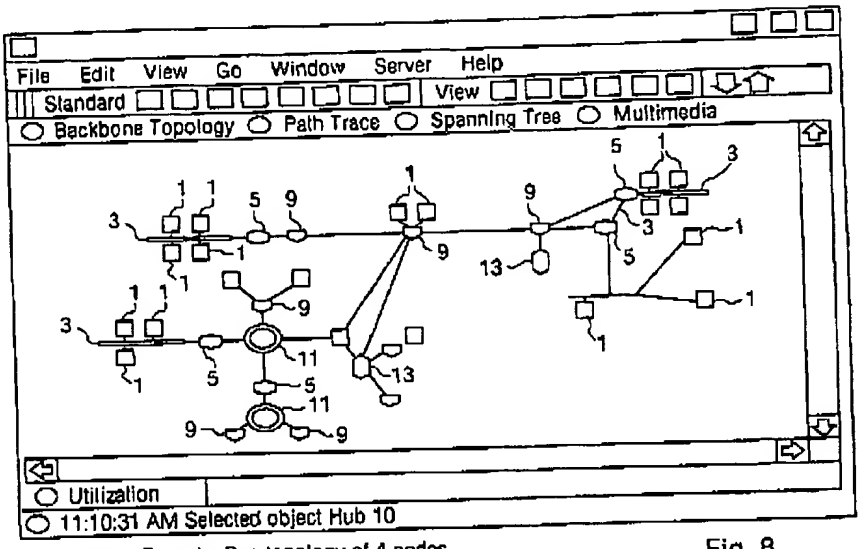


Fig. 3

From an initial review it appears that Figure 3 of Ahern shows a screen shot of a management program that is configured to display the network elements in a network topology. Elements 9 and 9A in Fig. 3 show routers or other types of network devices but do not show that the routers should contain a multicast database that is protocol independent.

Fig. 3 is described in the description of the figures section, for example at col. 4, line 63, as a multimedia path tracing view of the network. Fig. 3 is discussed in greater detail at col. 6, line 55 to col. 7, line 17, which was also cited by the Examiner as support for teaching the use of a protocol independent multicast database. This portion of Ahern describes in a general way how routers may subscribe to a multicast by transmitting requests to join an existing multicast up toward the source until the tree is found. This portion of Ahern also teaches that the network supervisor may analyze the individual links in the multicast tree and the individual devices on the multicast tree. Ahern does not mention that the devices on the tree should store the multicast information in a protocol independent manner in this cited portion.

The Examiner also cited Fig. 8 of Ahern, which is reproduced below for convenience:



1. Collision Domain, Bus topology of 4 nodes
2. Network Switch, connecting collision domain to routed network
3. Layer 2, FDDI dual ring topology

Fig. 8

This figure, like Figure 3, appears to be a screen snapshot of a network management program, illustrating various network elements interconnected in a particular network topology. At col. 5, lines 4-5 of Ahern, this figure is described as a routing overview of the network which can be expanded to show information from the other views. Fig. 8 is described in greater detail at Col. 5, line 39 to Col. 6, line 23. In this portion of the description, Ahern describes the different network elements that are connected together by the links shown in the figure and generally describes the network topography shown in Fig. 8. Ahern also mentions that the network manager may zoom in on particular links and network elements using the user interface shown in Fig. 8. However, Ahern does not teach or suggest in this part of the written description that any of the network elements shown in Fig. 8 should include a protocol independent multicast database.

The last portion of Ahern that the Examiner cited as teaching a protocol independent multicast database is Col. 17, lines 34-57 (MIB II). This portion of Ahern falls under the heading MRTREE (See Col. 15, line 22) and, accordingly, is to be read in the context of this section of Ahern.

MRTREE is a public domain application (Ahern at Col. 17, lines 37-38) that is configured to access the DVMRP MIB to obtain information about potential multicast trees.

(Ahern at Col. 15, lines 45-49). The MRTREE application uses IGMP and SNMP queries to discover multicast tree information on the network. As is well known, IGMP is a protocol that enables entities to join and leave multicasts on an IP network, but is not a multicast routing protocol. Rather, IGMP is used to gain membership in a multicast, but does not actually carry any user data. A routing protocol such as DVMRP is used to organize routers into a tree, and the potential tree information is stored in the DVMRP MIB (See Ahern at Col. 15, lines 45-48). The IGMP and SNMP queries thus are used to retrieve the DVMRP information from the routers for use by the DVMRP implemented MRTREE application.

The portion of Ahern cited by the Examiner (Col 17, lines 34-57) discusses the MIB objects that are required on the network elements to support the MRTREE application. Of the 13 identified MIB objects, 7 are DVMRP specific:

- DVMRP version;
- DVMRP virtual interface local address;
- DVMRP virtual interface remote address;
- DVMRP virtual interface remote subnet mask;
- DVMRP neighbor version;
- DVMRP Route upstream neighbor; and
- DVMRP Route Next Hop Type

Clearly the MIB required to implement Ahern's solution requires DVMRP multicast routing information to be stored in the network elements. Thus, Ahern does not teach or suggest storing protocol independent multicast routing information on the routers.

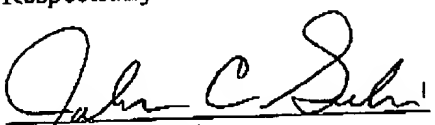
Applicants have amended the claims to clarify that the protocol independent multicast database contains protocol independent multicast routing information. In view of the amendments to the claims and the fact that Ahern uses a DVMRP specific application to trace multicast information on network devices, applicants respectfully request that the rejection of the claims be withdrawn.

Conclusion

Applicants respectfully submit that the claims pending in this application are in condition for allowance and respectfully request an action to that effect. If the Examiner believes a telephone interview would further prosecution of this application, the Examiner is respectfully requested to contact the undersigned at the number indicated below.

If any fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 502246 (Ref. NN-13774).

Respectfully Submitted



John C. Gorecki
Registration No. 38,471

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John C. Gorecki, Esq.
P.O. Box 553
Carlisle, MA 01741
Tel: (978) 371-3218
Fax: (978) 371-3219
john@gorecki.us